

**BIAS-MANAGEMENT SYSTEM AND METHOD
FOR PROGRAMMABLE RF POWER AMPLIFIER**

ABSTRACT OF THE DISCLOSURE

A system (100) and method (200) for adaptively managing bias of an RF power amplifier (102) is provided. The system (100) incorporates a controller (116) configured to select a radio operating mode. A current-mirror circuit (114) is coupled to the controller (116) and configured to produce a reference current (I_{Ref}) as a function of the radio operating mode. A bias regulator (104) is coupled to the controller (116) and the current-mirror circuit (114) and configured to produce a driver-stage bias current (I_{b1}) and an output-stage bias current (I_{b2}) for the power amplifier (102) in response to the reference current (I_{Ref}). The system (100) also incorporates a DC-to-DC converter (118) coupled to the controller (116) and configured to provide a supply voltage (V_{cc}) for the power amplifier (102) in response to the radio operating mode. The system (100) also incorporates an envelope detector (120) configured to produce an envelope current (I_{Env}) in response to an RF input signal (126). The system (100) causes the reference current (I_{Ref}) to vary as a function of the envelope current (I_{Env}).